

CLAIMS

1. A belt type continuous plate manufacturing apparatus comprising two endless belts so placed that their facing belt surfaces run toward the same direction at the same speed, and continuous gaskets running under condition of being sandwiched by belt surfaces at their both side edge portions, wherein a polymerizable raw material is fed into a space surrounded by the facing belt surfaces and the continuous gaskets from its one end, the polymerizable raw material is solidified together with running of the belts in a heating zone, and the plate polymer is taken out from the other end, characterized in that three or more upper and lower roll pairs satisfying the following formula (1) and formula (2) are placed so that respective axes thereof orthogonally cross the belt running direction, between a raw material feeding position and a heating initiation position:

$$D/Z \geq 0.04 \quad (1)$$

$$0.30 \leq D/X \leq 0.99 \quad (2)$$

D: outermost diameter of roll body portion [mm]

Z: width of roll body portion [mm]

X: distance between axis centers of adjacent upper and lower roll pairs [mm].

2. The belt type continuous plate manufacturing apparatus according to Claim 1, wherein at least one of three or more upper and lower roll pairs satisfies the following formula (3):

$$0.50 \leq D/X \leq 0.99 \quad (3)$$

D: outermost diameter of roll body portion [mm]

X: distance between axis centers of adjacent upper and lower roll pairs [mm].

3. The belt type continuous plate manufacturing apparatus according to Claim 1, wherein the raw material feeding part has a structure in which a raw material is flown from one or a plurality of pipes onto a plane surrounded by the lower endless belt and the gaskets at the both side edge portions.

4. The belt type continuous plate manufacturing apparatus according to Claim 1, wherein a laser beam emitter is provided on the side of the raw material feeding part and, laser ray is emitted from the laser beam emitter along the belt running direction.

5. A method of producing a plate polymer, wherein a plate polymer is obtained from a polymerizable raw material containing methyl methacrylate, using the belt type continuous plate manufacturing apparatus according to Claim 1.

6. A method of producing a plate polymer, wherein a plate polymer is obtained from a polymerizable raw material containing methyl methacrylate, using the belt type continuous plate manufacturing apparatus according to Claim 4.

7. The method of producing a plate polymer according to Claim 5, wherein after feeding of a raw material from the raw material feeding part, a position on the belt running direction when a raw material spreading along the width direction due to the self weight reaches the gasket at the both side edge portions of the lower endless belt is detected, and regulation is so made that this position shows a variation width of 1 m or less along the belt running direction.

8. The method of producing a plate polymer according to Claim 6, wherein after feeding of a raw material from the raw material feeding part, a position on the belt running direction when a raw material spreading

along the width direction due to the self weight reaches the gasket at the both side edge portions of the lower endless belt is detected by emitting laser ray from the laser beam emitter along the belt running direction and detecting reflection light orthogonally crossing the belt running direction among lights reflected at the gas-liquid interface between a raw material and air, and regulation is so made that this position shows a variation width of 1 m or less along the belt running direction.

9. The method of producing a plate polymer according to Claim 5, wherein when the running two endless belts reach the inlet of the heating zone to show initiation of temperature rising, regulation is so made that the maximum value of temperature rising per minute is 60°C or less in both of the two endless belts.

10. The method of producing a plate polymer according to Claim 9, wherein when the running two endless belts reach the inlet of the heating zone to show initiation of temperature rising, the belts pass through a space maintained at a relative humidity of 50% or more and a temperature of 50°C to 100°C for at least 30 seconds after initiation of temperature rising.

11. The method of producing a plate polymer according to Claim 5, wherein a gasket is used so that the compression strength in compressing to the thickness of a plate polymer at the heating temperature is 0.5 N/mm or less and the contact width of the belt surface with the gasket outer surface in compressing to the thickness of a plate polymer at the heating temperature is 8 mm or more.

12. The method of producing a plate polymer according to Claim 11, wherein the gasket has a hollow structure, and air or inert gas is blown into the hollow part of the gasket to regulate the pressure in the hollow part.

13. The method of producing a plate polymer according to Claim 12, wherein the pressure in the hollow part of the gasket is regulated in the range of gauge pressures of 0 to 3.0×10^4 Pa.